

WHAT IS CLAIMED IS:

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1. A surgical apparatus for delivering fluid to treat a lesion comprising:
a housing;
hollow elongated member extending from the housing;
a plurality of tines positioned in the elongated member, each of the tines having a lumen and at least one opening communicating with the lumen for delivering fluid to the lesion; and
an actuator operatively associated with the tines, the actuator actuatable to a first position to move the plurality of tines from a retracted position substantially within the elongated member to a first deployed position extending from the elongated member and actuatable to a second position to move the plurality of tines from the first position to a second deployed position extending further from the elongated member, the tines being retained in the first and second deployed positions by a retention member.
2. The apparatus of claim 1, wherein the elongated member comprises a needle with a penetrating distal end and the actuator is rotatable and axially slidable to move the plurality of tines from the retracted position to the first deployed position and from the retracted position to the second deployed position.
3. The apparatus of claim 1, wherein the plurality of tines are composed of shape memory metal.
4. The apparatus of claim 1, wherein the housing includes a first track and the actuator includes a plunger having a first projecting surface slidably movable within the first track as the plunger is advanced.
5. The apparatus of claim 4, wherein the first track is formed in an inside wall of the housing and terminates in an edge which forms a stop for the plunger and wherein the plunger includes a second projecting surface slidably movable within a second track in the housing.

6. The apparatus of claim 1, wherein one of the plurality of tines is extendable in substantial alignment with a longitudinal axis of the elongated member and at least another of the plurality of tines is extendable at an angle to the longitudinal axis of the elongated member.

7. The apparatus of claim 6, wherein at least two of the plurality of tines are extendable at an angle to a longitudinal axis of the elongated member.

8. The apparatus of claim 4, wherein the retention member further comprises a first detent engagable by the plunger to retain the plurality of tines in the first deployed position.

9. The apparatus of claim 8, wherein the housing includes a second track and the retention member further comprises a second detent engagable by the plunger, the first and second detents located in the first and second tracks to retain the tines in the deployed position.

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a.b.

10. The apparatus of claim 1, further comprising a release mechanism for releasing the plurality of tines from the housing to enable their removal from the elongated member.

11. A surgical apparatus for delivering fluid to treat a lesion comprising:
a housing;
a hollow elongated member extending from the housing;
first and second tines positioned in the elongated member, each of the tines having a lumen and at least one opening communicating with the lumen for delivering fluid to the lesion, the first and second tines movable between a retracted position, a first deployed position and a second deployed position; and
an actuator operatively associated with the tines, the actuator movable in a first direction to move the first and second tines from the retracted position to the first

deployed position and movable in a second direction to move the first and second tines from the retracted position to the second deployed position, the second direction being different from the first direction, and in the second deployed position the first and second tines are advanced further from the elongated member than in the first deployed position.

12. The apparatus of claim 11, wherein the actuator is rotatable in the first direction for movement of the first and second tines to the first deployed position and rotatable in the second direction for movement of the first and second tines to the second deployed position.

13. The apparatus of claim 12, wherein the actuator is axially slidable to move the first and second tines to the first and second deployed positions.

14. The apparatus of claim 13, wherein the housing includes a short track and a long track, a portion of the actuator slidable in the short track to move the first and second tines to the first deployed position and slidable in the long track to move the first and second tines to the second deployed position.

15. The apparatus of claim 11, wherein the first and second tines in the deployed position extend at an angle to a longitudinal axis of the elongated member.

16. The apparatus of claim 15, further comprising a third tine having a lumen and an opening in fluid communication with the lumen for delivery of fluid to the lesion, the third tine movable between a retracted position, a first deployed position, and a second deployed position, wherein in the first and second deployed positions the third tine is substantially aligned with the longitudinal axis of the elongated member.

17. An apparatus for delivering fluid for tumor ablation comprising:
a housing;
an elongated tissue penetrating member extending from the housing;

first and second tines positioned in the elongated member, each of the tines having a lumen and at least one opening communicating with the lumen for delivering fluid to the lesion, the first and second tines movable between a retracted position, a first deployed position and a second deployed position, the first tine being substantially aligned with a longitudinal axis of the elongated member in the retracted position and in the first deployed position, and the second tine being substantially aligned with a longitudinal axis of the elongated member in the retracted position and at an angle to the longitudinal axis of the elongated member in the first deployed position.

18. The apparatus of claim 17, further comprising an actuator operatively associated with the tines, the actuator movable to move the first and second tines from the retracted position to the first deployed position and movable to move the first and second tines from the retracted position to the second deployed position.

19. An apparatus for delivering fluid to treat tumors comprising:
a housing;
an elongated member extending from the housing;
a plurality of tines positioned in the elongated member, each of the tines having a lumen and at least one opening communicating with the lumen for delivering fluid to the lesion; and

an actuator operatively associated with the plurality of tines, the actuator actuatable to a first position to move the plurality of tines from a retracted position substantially within the elongated member to a first deployed position extending distally of the elongated member and actuatable to a second position to move the plurality of tines from the retracted position to a second deployed position extending distally of the elongated member, the actuator movable to the second position without movement to the first position.

20. An apparatus for treating tumors comprising:
a housing;
an elongated member extending from the housing;

a plurality of tines positioned in the elongated member, each of the tines having a lumen and at least one opening communicating with the lumen for delivering fluid to the lesion, the tines being removably positioned within the elongated member;

a release mechanism operatively associated with the plurality of tines, the release mechanism operable to release the plurality of tines from the elongated member to enable withdrawal from the apparatus; and

an actuator operatively associated with the tines, the actuator actuable to move the plurality of tines from a first position substantially within the elongated member to a deployed position extending from the elongated member.

21. The apparatus of claim 20, further comprising a collagen plug deployer insertable into the elongated member after release and removal of the plurality of tines.

22. The apparatus of claim 20, further comprising an elongated support connected to the plurality of tines and connected to the actuator, the elongated support and the actuator removable with the tines from the elongated member and the housing.

23. The apparatus of claim 22, wherein the housing includes a release lever engagable with a tab extending from the actuator, the release lever biasing the tab out of engagement to enable release of the actuator.

24. A method for treating a lesion comprising:
inserting an apparatus adjacent the lesion;
rotating an actuator in a first direction and advancing the actuator in a distal direction to deploy a plurality of tines from the apparatus; and
injecting ablation fluid through a plurality of openings in the tines to ablate the lesion.

25. The method of claim 24, further comprising the step of removing the plurality of tines after the step of injecting the ablation fluid.

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